

**Abstract**

An optical transmission system has an optical transmission terminal with first and second optical interfaces. The first interface is configured to communicate in accordance with an industry-standard, network level protocol. The second interface is configured to communicate in accordance with a first optical layer transport protocol. The optical transmission span includes an optical interface device that has a third interface communicating with the second interface of the optical transmission terminal in accordance with the first optical layer transport protocol and a fourth interface configured to communicate in accordance with a second optical layer transport protocol. The optical interface device also has a signal processing unit for transforming optical signals between the first and second optical layer transport protocols. The optical transmission span also includes an optical transmission path optically coupled to the fourth optical interface of the optical interface device for transmitting optical signals in accordance with the second optical layer transport protocol.